

Installation Instructions Part No. 58SXC900---00101

NOTE: Read the entire instruction before starting the installation.

INTRODUCTION


This instruction covers the installation of Gas Conversion Kit Part No. 58SXC900---00101 in a Model 58SXC Upflow or Model 58DXC Downflow, Series 100 Condensing Furnace equipped with the White-Rodgers 36E gas valve and hot surface ignition (HSI).

SAFETY CONSIDERATIONS

Installation and service of heating equipment can be hazardous due to gas and electrical components. Only trained and qualified personnel should install, repair, or service heating equipment.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, and on tags and labels attached to or shipped with the unit as well as other safety precautions that may apply.

Follow all safety codes. In the United States, follow all safety codes including the National Fuel Gas Code NFPA No. 54-1988/ANSI Z223.1-1988. In Canada, refer to the current edition of the National Standard of Canada CAN/C.G.A.-B149 Installation Code. Wear safety glasses and work gloves. Have a fire extinguisher available during start-up and adjustment procedures and service calls.

Recognize safety information: This is the safety-alert symbol . When you see this symbol on the furnace and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal word—DANGER, WARNING, OR CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies hazards that could result in personal injury or death. CAUTION is used to identify unsafe practices, which would result in minor personal injury or product and property damage.

WARNING

This conversion kit is to be installed by a Carrier factory-authorized Dealer, Distributor, or other qualified agency in accordance with the Carrier instructions and all codes and requirements of the authority having jurisdiction. A failure to follow instructions could result in serious injury or property damage. The qualified agency performing this work assumes responsibility for this conversion.

In Canada, the conversion shall be carried out in accordance with the requirements of the provincial authorities having jurisdiction and in accordance with the requirements of the CAN/CGA B149.1 and .2 installation code.

WARNING

Improper installation, adjustment, alteration, service, maintenance, or use can cause carbon monoxide poisoning, explosion, fire, electrical shock, or other conditions which may cause personal injury, loss of life, or property damage. Consult a qualified installer, service agency, local gas supplier or your distributor or branch for information or assistance. The qualified installer or agency must use only factory-authorized kits or accessories when modifying this product. Failure to follow this warning could result in electrical shock, fire, personal injury, or death.

Table 1—Kit Contents

| DESCRIPTION | PART NO. | QTY |
|--|------------------|-----|
| Propane Conversion Kit/Regulator Spring for White-Rodgers 36E Gas-Valve (White, 6 Turns) | EF39ZW025 | 1 |
| Burner Orifice No. 55 | LH32DB201 | 6 |
| Splice Connector (1/4-in. Male, Both Ends) | 66175D55 | 1 |
| Wire Tie | HY76TB125 | 1 |
| Propane Pressure Switch | HK02LB018 | 1 |
| Pipe Nipple (1/8-in. X 1 1/2-in.) | CA01CA006 | 1 |
| 90° Street Elbow (1/8 in.) | CA15RA001 | 1 |
| Yellow Wire Assembly (33 in.) | W183Y23--04--033 | 2 |
| Gas Control Conversion Label | 310148-301 | 1 |
| Conversion Responsibility Label | 310167-354 | 1 |
| Installation Instruction | 58D,S-28SI | 1 |
| Conversion Rating Plate | 310168-384 | 1 |

DESCRIPTION AND USAGE

This kit is designed for use in converting natural gas 100 percent shut-off HSI controls to propane 100 percent shut-off HSI controls. The kit is for use in gas-fired condensing furnaces with 40,000-through 120,000-Btuh nominal capacity.

Additional parts may be shipped in the kit; when the installation is complete, discard the unused parts.

The definition of 100 percent shut-off refers to automatic shut-off of the burner gas when the burner flame is not proven.

During normal operation, if the burner flame is not proven within 2 seconds after the ignitor is de-energized, the control will de-energize the gas valve and will repeat the ignition cycle. If the flame is not proven after the fourth cycle, the control will lock out until it is electrically reset.

Electrically reset the control by setting the room thermostat below room temperature for approximately 30 seconds, or by turning off the electrical supply.

INSTALLATION

Step 1—Installation of Burner Orifices

NOTE: See Fig. 1 or 2 for component location on upflow or downflow furnaces, respectively.

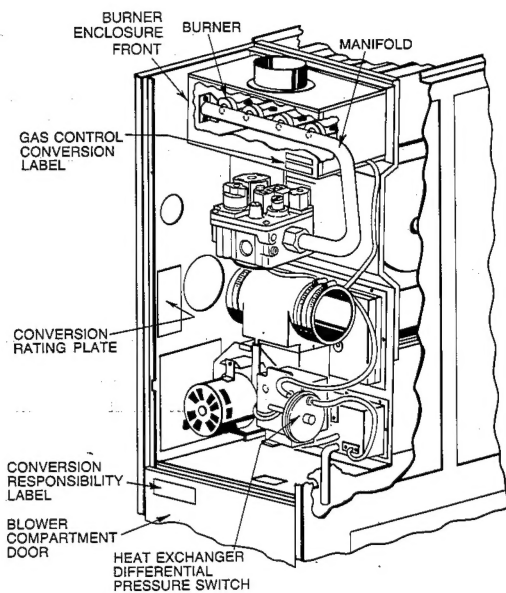


Fig. 1—Furnace Components (Upflow Furnace)

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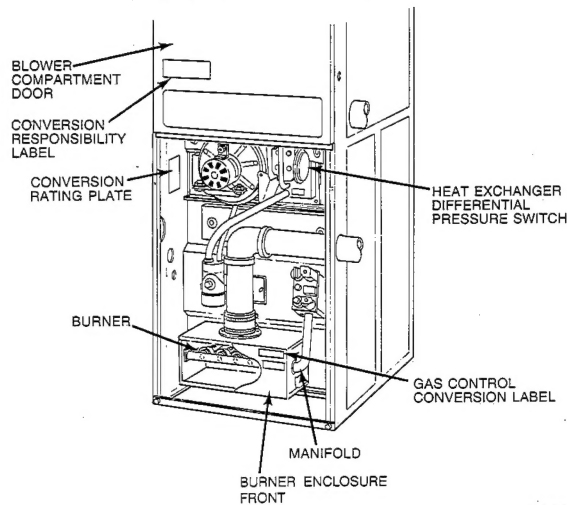


Fig. 2—Furnace Components (Downflow Furnace)

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1. Turn off gas and electrical supplies to furnace.
2. Remove control compartment access door.
3. Remove burner enclosure front.
4. Remove combustion-air diffuser. (See Fig. 3.)

NOTE: Before removing burners, note routing of wiring in burner compartment. Also, refer to label on burner enclosure front regarding wiring.

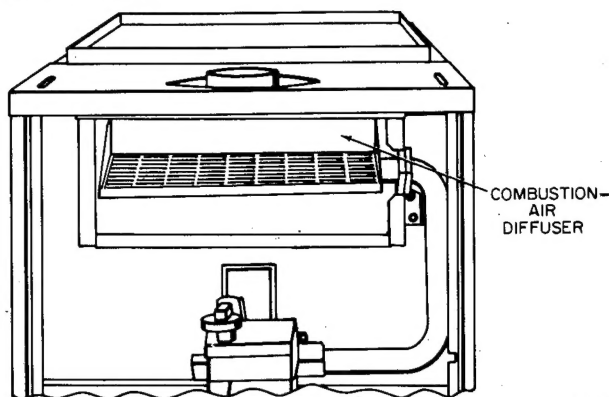


Fig. 3—Combustion-Air Diffuser Location

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5. Remove screws that secure burner bracket and remove bracket. Remove burners carefully, from left to right, to prevent damaging ignitor.
6. Remove and discard orifices from manifold.
7. Install No. 55 burner orifices provided in kit. Finger-tighten orifices at least one full turn to prevent cross-threading, then tighten orifices with a wrench. Enough orifices are supplied in each kit for the largest furnace; discard unused orifices.

In the U.S., the full input rating with No. 55 burner propane orifices is approved for altitudes up to 2000 ft. The input rating for altitudes above 2000 ft must be reduced by 4 percent for each 1000 ft above sea level. Consult the current edition of the National Fuel Gas Code NFPA No. 54/ANSI Z223.1, Part 8.1 and Appendix F, Table F-4, for input adjustment for high altitude.

In Canada, the adjustments must be made in accordance with the CAN/C.G.A.-B149 Installation Code.

8. Reinstall burners, from right to left, and burner bracket. Ensure that burner crossovers are aligned. See Fig. 4 and 5 for proper orientation of ignitor and burners. Ensure wiring is routed properly; see label on burner enclosure front regarding wiring.

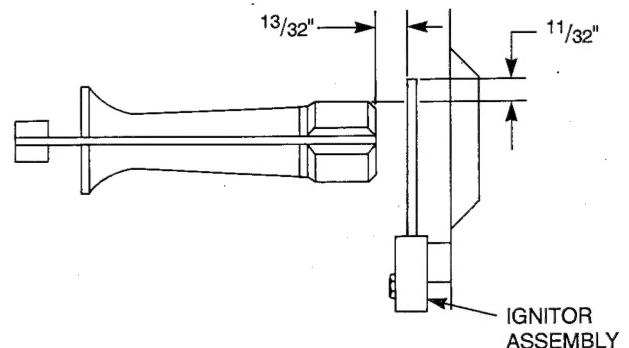


Fig. 4—Position of Burner and Ignitor (Side View)

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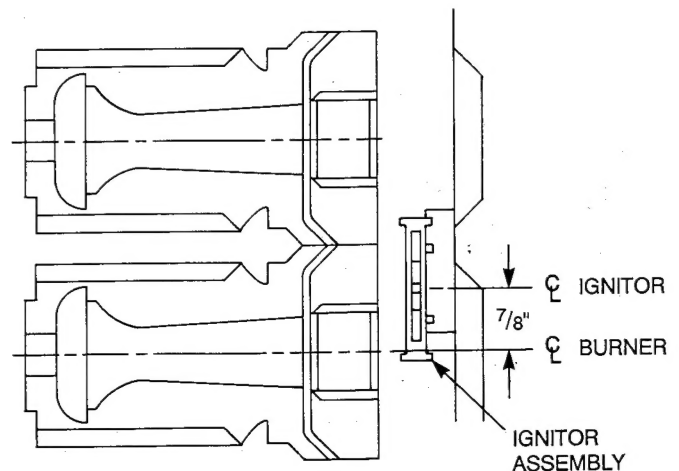


Fig. 5—Position of Burner and Ignitor (Top View)

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9. Reinstall combustion-air diffuser with vents to front. (See Fig. 3.)

10. Do not reinstall burner enclosure front at this time.

Step 2—Conversion of Gas Valve and Inlet Gas Pressure Check

1. Remove regulator seal cap. (See Fig. 6.)

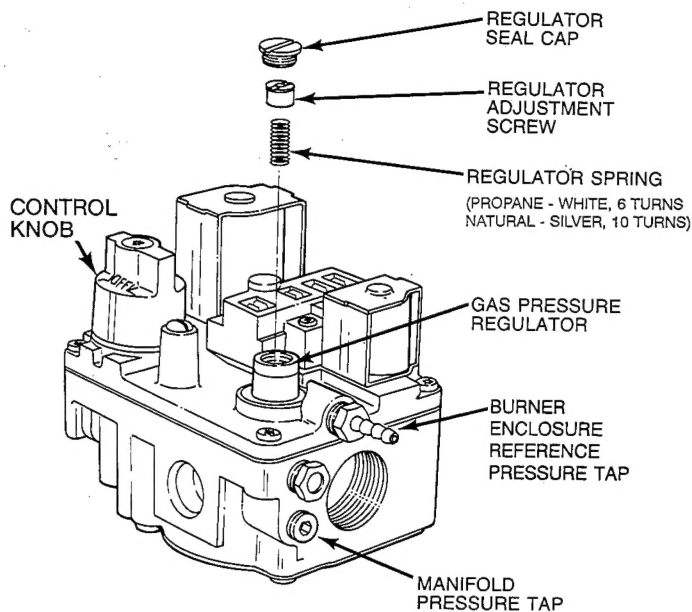


Fig. 6—White-Rodgers 36E Gas Valve A90224

2. Remove regulator adjustment screw and natural gas regulator spring (silver).
3. Install white propane regulator spring provided in kit.
4. Replace regulator adjustment screw. Do not reinstall regulator seal cap at this time.
5. Remove 1/8-in. pipe plug from inlet pressure tap on gas valve. (See Fig. 7 or 8.)

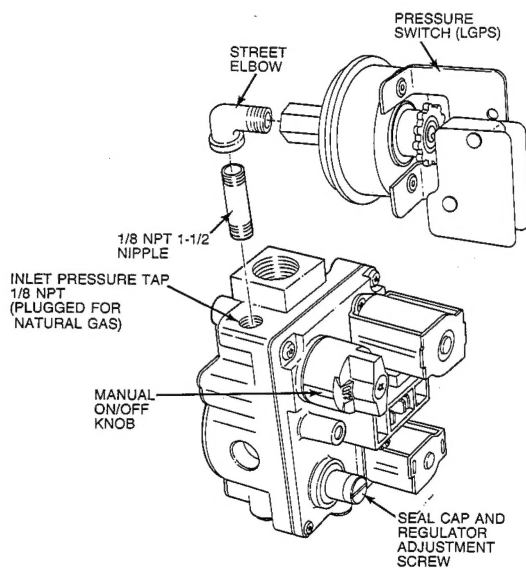
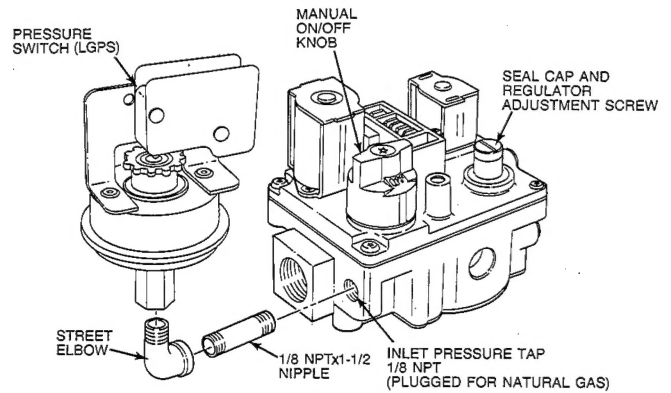


Fig. 7—Installation of Pressure Switch (Downflow Furnace) A88209

6. Check inlet propane gas pressure as follows:



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Fig. 8—Installation of Pressure Switch (Upflow Furnace)

NOTE: This kit is to be used only when inlet propane gas pressure is between 11.0-in. wc and 13.6-in. wc.

- a. Attach manometer at inlet pressure tap on gas supply side of furnace gas valve.

⚠ CAUTION

Do not operate furnace more than one minute to check inlet gas pressure since conversion is not complete at this time.

- b. Set room thermostat to "call for heat."
- c. Turn gas supply manual shut-off valve ON.
- d. Turn furnace gas valve control knob ON.
- e. Turn ON electrical supply to furnace.
- f. When burners have ignited, confirm proper inlet gas pressure.
- g. Turn furnace gas valve control knob OFF.
- h. Turn gas supply manual shut-off valve OFF.
- i. Turn OFF electrical supply to furnace.
- j. Remove manometer.

NOTE: Use a propane gas resistant pipe dope. Do not use Teflon tape.

NOTE: The inlet gas pipe must be disconnected from the valve so the pressure switch can be installed.

7. Apply pipe dope sparingly to both ends of pipe nipple (provided in kit) and install nipple in 1/8-in. tapped opening in gas valve; finger tighten. (See Fig. 7 or 8.)
8. Apply pipe dope sparingly to threaded end of street elbow (provided in kit). Install elbow on nipple; finger tighten. Use small pipe wrench for final tightening.
9. On upflow furnaces, point male end of street elbow vertically up and tilted back to clear control compartment access door. (See Fig. 8.)
10. On downflow furnaces, point male end of street elbow towards front of gas valve. (See Fig. 7.)
11. Apply pipe dope sparingly to end of inlet gas pipe and reconnect pipe to gas valve.
12. Install propane pressure switch (provided in kit) on street elbow. After switch has been finger tightened, use small wrench on base of pressure switch for final tightening. When pressure switch is tight, switch terminals should point toward right side of furnace.

Step 3—Wiring

1. Disconnect yellow wire from heat exchanger differential pressure switch (PRS) on inducer housing; add splice connector to this wire.
2. Connect uninsulated terminal of one yellow wire (provided in kit) to the splice connector; connect other end to terminal C on low gas pressure switch (LGPS) on gas valve.
3. Connect insulated terminal of second yellow wire (provided in kit) to terminal NO on pressure switch LGPS; connect other end to pressure switch PRS.
4. Route yellow wires along wire harness; secure wires with wire tie provided.

Step 4—Check Furnace Operation and Make Necessary Adjustments

1. Ensure gas and electrical supplies to furnace are OFF.
2. Attach manometer at manifold pressure tap on downstream side of gas valve.
3. Set room thermostat to "call for heat."
4. Turn ON gas supply manual shut-off valve.

⚠ WARNING

Never use a match or other open flame to check for leaks. Use a soap-and-water solution. Failure to follow this warning could result in personal injury or death.

5. Turn furnace gas valve control knob ON and check all threaded pipe connections for gas leaks.
6. Turn ON electrical supply to furnace.
7. When hot surface ignitor glows, check it for cracks in silicon carbide.
8. When burners ignite, check manifold orifices for gas leaks.
9. Gas input rate for propane gas is the same as for natural gas. See furnace rating plate for input rate. Input rate for propane is determined by manifold pressure. Set manifold pressure at 10.5-in. wc. To adjust manifold pressure, turn adjustment screw for gas valve regulator either counterclockwise (out) to decrease pressure, or clockwise (in) to increase pressure.

NOTE: The manifold pressure must always be measured with the burner enclosure front removed.

10. Replace regulator seal cap.
11. Replace burner enclosure front.

⚠ CAUTION

Ensure burner enclosure front is in place after adjustment has been made.

12. Look through sight glass in burner enclosure and check burner flame. Burner flame should be clear blue, almost transparent. (See Fig. 9.)
13. Turn furnace gas valve control knob OFF.
14. Remove manometer and replace manifold pressure tap plug.
15. Turn furnace gas valve control knob ON.

16. With main burners ignited, check pressure tap plug for gas leaks.

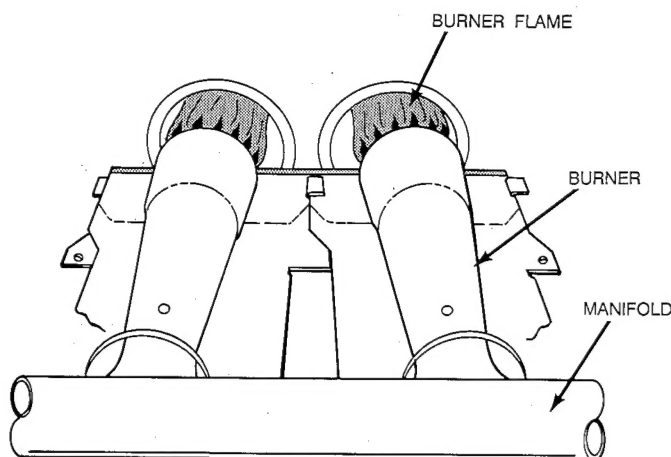


Fig. 9—Burner Flame

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Step 5—Check Pressure Switch Operation

The newly-installed pressure switch is a safety device used to guard against possible ignition of unburned gas in the combustion chamber. Adverse burner operating characteristics can result from low gas supply pressure.

This normally-open switch closes when gas is supplied to the gas valve under normal operating conditions. The closed switch completes the control circuit.

Should an interruption or reduction in the gas supply occur the gas pressure at the switch drops below the pressure switch setting and the switch opens. Any interruption in the control circuit (in which the pressure switch is wired) instantly closes the gas valve and stops gas flow to the burners.

When normal gas pressure to the gas valve is restored, the system must be electrically reset to re-establish normal heating operation.

Before leaving the installation, observe unit operation through a few complete heating cycles. During this time, turn OFF the gas supply to the gas valve just long enough to completely extinguish the burner flame, then instantly restore the full gas supply to the gas valve. To ensure proper pressure switch operation, observe that there is no gas supply to the burners until after the hot surface ignitor begins glowing.

Step 6—Label Application

1. Fill in Conversion Responsibility Label (310167-354) and apply it to front of blower access door.
2. Attach Gas Control Conversion Label (310148-301) to burner enclosure front. (See Fig. 1 or 2.)
3. Attach Furnace Conversion Rating Plate (310168-384) on left side of furnace near existing furnace rating plate. (See Fig. 1 or 2.)

NOTE: Discard labels and instructions packed with White-Rodgers regulator spring conversion kit.

4. Replace furnace control access door.
5. Set room thermostat to desired temperature.